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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,929	09/23/2003	Katsumasa Yoshii	9281-4666	3347

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EXAMINER

NGUYEN, HOAN C

ART UNIT PAPER NUMBER

2871

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/668,929	Applicant(s) YOSHII ET AL.	
	Examiner HOAN C. NGUYEN	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-30 is/are pending in the application.
- 4a) Of the above claim(s) 19,20,22,23 and 26-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-18, 21 and 24-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/26/2006 has been entered.

Claims 1-16 are cancelled and claims 19-20, and 21-23 are withdrawn. New claims 26-30 are method claims, which are not an original representation as following:

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 17-25, drawn to a liquid crystal display device, classified in class 349, subclass 113.
- II. Claims 26-30 drawn to a method fabricating a reflector, classified in class 359, subclass 208.

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2)

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that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case a liquid crystal display device in invention I can be made with different process, in which the reflector can be made by photolithography.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Group I contains claims directed to the following patentably distinct species of the claims invention:

A. Claims 18 and 21, drawn to the reflective type LCD with a reflective plate disposed on the lower substrate and below the transparent electrode formed on the lower substrate (**Applicant's election of species A filed on 12/15/2004**).

B. Claims 19 and 20, drawn to the transfective (semitransparent and semi-reflective) type LCD with a half mirror plate disposed below the lower substrate and above the backlight.

C. Claims 22 and 23, drawn to the reflective type LCD with a reflective electrode forming on the lower substrate.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 17 are generic of group I.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

New claims 26-30 are directed to an invention (with method claims) that is independent or distinct from the invention originally claimed (with device claims only) for the following reasons: claims 26-30 are the method claims including the steps that *were not originally presented*. As originally presented, the examiner has considered and examined only the originally presented claims with the device claims in the election on 12/15/2004.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 26-30 are withdrawn from consideration as being to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 812.03.

Applicant is reminded that upon the cancellation of claims of a non-elected invention; the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be a diligently-filed petition under 37 CFR 1.48 (b) and by the fee required under 37 CFR 1.17(h).

Applicant's election of species A (claims 17-18 and 21) filed on 12/15/2004 was treated as an election without traverse. New claims 24 and 25 are also in the elected species. Therefore, only claims 17-18, 21 and 24-25 are elected in species A; claims 19-20, 22-23 and 26-30 are withdrawn from consideration due to different invention and species.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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1. Claims 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuda et al. (US6097458A).

Claim 17:

Tsuda et al. teach (Figs. 9) a liquid crystal display device comprising

- a reflector 14 having a plurality of light reflective concave portions arranged randomly adjacent to each other on a surface of a base material of the reflector 14,
- each said light concave reflective portion having a single minimal point and a curved surface with a maximum inclination angle at one side portion, disposed opposite to an observer, where the side portion having the maximum inclination angle at same side of each the light reflective concave portion as Fig. 9F shown, thereof so that the one side portion has a larger reflectance magnitude than an opposing side portion as Fig. 9F shown, and
- a light reflectance peak at a predetermined angle in accordance with a location of the maximum inclination angle, and that opposes a viewpoint of the observer.

wherein

Claim 18: the base material (aluminum) is reflective, thereby forming a reflective liquid crystal display device.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 17, 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. (US6130736A) in view of Tsuda et al. (US6097458A).

In regard to claim 21, Sasaki et al. teach (Figs. 1 and 4) a liquid crystal display device comprising:

- a pair of substrates 1/2,
- a liquid crystal layer 3 disposed between the substrates,
- the reflector 14 disposed on one of the substrates,
- a transparent intervening layer (a first overcoat layer 17a) disposed on the reflector,
- a color filter layer 16 disposed on the transparent intervening layer,
- a transparent planarization layer (a second overcoat layer 17b) disposed on the color filter layer,
- a transparent electrode (9 made of ITO (indium-tin-oxide)) disposed on the transparent planarization layer,
- an alignment layer (an orientation film 11) disposed between the transparent electrode and the liquid crystal layer.
- a reflector having light reflective concave portions

wherein

Claim 25: the depth of the light reflective concave portions is in a range of 0.1 to 3 μm (col. 9 lines 33-35).

However, Sasaki et al. fail to teach the reflector with feature in claims 17.

Tsuda et al. teach (Fig. 1A-B and 4) the reflector with feature in claim 17 for reflecting light incident thereon toward particular direction (col. 3 lines 64-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a reflection type liquid crystal display device as Sasaki et al. with the reflector with feature in claim 17 for reflecting light incident thereon toward particular direction as taught by Tsuda et al. (col. 3 lines 64-65).

3. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al. (US6097458A) as applied to claims 17-18 above in view of Hayashi et al. (US6166793A).

Tsuda et al. fail to disclose forming the light reflective concave portions, wherein the maximum inclination angle is in a range of 4° to 35° .

Hayashi et al. teach forming the light reflective concave portions, wherein the maximum inclination angle is in a part of the range of $5-45^{\circ}$ covering 4° to 35° (abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a reflection type liquid crystal display device as Tsuda et al. with the reflector having the maximum inclination angle is in a

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range of 4° to 35° for exhibiting a bright image and an excellent visibility of image as Hayashi taught (abstract).

1. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuda et al. (US6097458A) as applied to claims 17-18 above in view of Sasaki et al. (US6130736A).

Tsuda et al. fail to disclose forming the depth of the light reflective concave portions is in a range of 0.1 to 3 μm .

Sasaki et al. teach forming the depth of the light reflective concave portions is in a range of 0.1 to 3 μm (col. 9 lines 33-35).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a reflection type liquid crystal display device as Tsuda et al. with the reflector forming the depth of the light reflective concave portions is in a range of 0.1 to 3 μm for easily making the corrugated surface flat as Sasaki taught (abstract and col. 9 lines 33-35).

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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ANDREW SCHECHTER
PRIMARY EXAMINER